

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (original): A film having a multilayer heterostructure, comprising at least one organic layer formed by self-assembly, said organic layer containing from 0.001 to 100 nM of a sensitizing dye.
2. (original): The film according to claim 1, wherein said sensitizing dye exhibits light absorption in a visible light range.
3. (currently amended): The film according to claim ~~1 or 2~~, wherein said sensitizing dye is a copper phthalocyanine-based compound.
4. (currently amended): The film according to ~~any of claims 1 to 3~~claim 1, wherein said organic layer contains an aromatic compound.
5. (currently amended): The film according to ~~any of claims 1 to 4~~claim 1, further comprising at least one inorganic layer formed by self-assembly.
6. (original): A film having a multilayer heterostructure, comprising at least one organic layer and at least one inorganic layer each formed by self-assembly, wherein said organic layer contains an aromatic compound.
7. (currently amended): The film according to ~~any of claims 1 to 6~~claim 1, wherein said organic layer is formed by an alternate adsorption method.

8. (currently amended): The film according to ~~any of claims 5 to 7~~claim 5, wherein said inorganic layer is formed by a sol-gel method.

9. (currently amended): The film according to ~~any of claims 5 to 8~~claim 5, wherein said organic and inorganic layers are alternately laminated to each other.

10. (currently amended): The film according to ~~any of claims 4 to 9~~claim 4, wherein said aromatic compound is a high-molecular compound having an aromatic ring.

11. (currently amended): The film according to ~~any of claims 1 to 10~~claim 1, wherein said organic layer is produced by alternate adsorption of a high-molecular compound having an aromatic ring and a high-molecular compound having a carboxyl group.

12. (currently amended): The film according to ~~any of claims 5 to 11~~claim 5, wherein said inorganic layer contains a titanium compound.

13. (original): A process for producing a film having a multilayer heterostructure, comprising the step of laminating an organic layer containing an aromatic compound and a sensitizing dye on a substrate by self-assembly.

14. (original): The process according to claim 13, wherein said sensitizing dye exhibits light absorption in a visible light range.

15. (currently amended): The process according to claim 13 ~~or 14~~, wherein said sensitizing dye is a copper phthalocyanine-based compound.

16. (currently amended): The process according to ~~any of claims 13 to 15~~claim 13, further comprising the step of laminating an inorganic layer on the substrate by self-assembly in addition to said organic layer.

17. (original): A process for producing a film having a multilayer heterostructure, comprising the step of respectively laminating an organic layer containing an aromatic compound and an inorganic layer on a substrate by self-assembly.

18. (currently amended): The process according to ~~claims 13 to 17~~claim 13, wherein said organic layer is laminated by an alternate adsorption method.

19. (currently amended): The process according to ~~any of claims 16 to 18~~claim 16, wherein said inorganic layer is laminated by a sol-gel method.

20. (currently amended): The process according to ~~any of claims 16 to 19~~claim 16, wherein said organic and inorganic layers are alternately laminated on each other.

21. (currently amended): The process according to ~~any of claims 13 to 20~~claim 13, wherein said organic layer is laminated by alternate adsorption of a high-molecular compound having an aromatic ring and a high-molecular compound having a carboxyl group.

22. (original): The process according to claim 21, further comprising the steps of:
dipping the substrate in an aqueous solution containing the high-molecular compound having an aromatic ring;

dipping the substrate in an aqueous solution containing the high-molecular compound having a carboxyl group; and

rinsing the substrate in a rinsing bath between the dipping steps.

23. (original): The process according to claim 22, wherein at least one of said aqueous solution containing the high-molecular compound having an aromatic ring and said

aqueous solution containing the high-molecular compound having a carboxyl group, contains a sensitizing dye.

24. (currently amended): The process according to ~~any of claim 19 to 23~~claim 19, wherein said inorganic layer is laminated by sol-gel method using a solution containing titanium alkoxide.

25. (original): The process according to claim 24, further comprising the steps of:
dipping the substrate in the solution containing titanium alkoxide;
hydrolyzing the titanium alkoxide absorbed onto the substrate; and
rinsing the substrate in a rinsing bath between the dipping and hydrolyzing steps.

26. (currently amended): An optical device using the film having a multilayer heterostructure as claimed in ~~any of claims 1 to 12~~claim 1.

27. (currently amended): An optical device using the film having a multilayer heterostructure which is produced by the process as claimed in ~~any of claims 13 to 25~~claim 13.

28. (new): The film according to claim 6, wherein said organic layer is formed by an alternate adsorption method.

29. (new): The film according to claim 6, wherein said inorganic layer is formed by a sol-gel method.

30. (new): The film according to claim 6, wherein said organic and inorganic layers are alternately laminated to each other.

31. (new): The film according to claim 6, wherein said aromatic compound is a high-molecular compound having an aromatic ring.

32. (new): The film according to claim 6, wherein said organic layer is produced by alternate adsorption of a high-molecular compound having an aromatic ring and a high-molecular compound having a carboxyl group.

33. (new): The film according to claim 6, wherein said inorganic layer contains a titanium compound.

34. (new): The process according to claim 17, wherein said organic layer is laminated by an alternate adsorption method.

35. (new): The process according to any of claim 17, wherein said inorganic layer is laminated by a sol-gel method.

36. (new): The process according to claim 17, wherein said organic and inorganic layers are alternately laminated on each other.

37. (new): The process according to claim 17, wherein said organic layer is laminated by alternate adsorption of a high-molecular compound having an aromatic ring and a high-molecular compound having a carboxyl group.

38. (new): An optical device using the film having a multilayer heterostructure as claimed in claim 6.

39. (new): An optical device using the film having a multilayer heterostructure as claimed in claim 13.

40. (new): An optical device using the film having a multilayer heterostructure as claimed in claim 17.

41. (new): An optical device using the film having a multilayer heterostructure which is produced by the process as claimed in any of claim 17.